

In the claims:

In the present amendment, Applicant has amended claims 1, 9, 32, 64 and 70, and canceled claims 3, 6, 13, 33, 65, and 68.

I. (Currently Amended) A closed locking ring for a device having a locking groove, wherein said locking ring includes an outer closed circumferentially continuous edge zone which slants at a first angle relative to a plane that is normal to the axis of said locking ring in a state prior to installation and slants at a second angle to said plane in an installed state and a radially inner circumferentially interrupted engagement zone which slants at a first angle relative to said plane that is normal to the axis of said locking ring in the state prior to installation and slants at a second angle to said plane in the installed state;

said first angle of said outer closed edge zone being substantially the same as said first angle of said radially inner circumferentially interrupted engagement zone in the state prior to installation and said second angle of said outer closed edge zone being different from said second angle of said radially inner circumferentially interrupted engagement zone in the installed state; and,

wherein in the installed state of the locking ring, at least a portion of said radially inner circumferentially interrupted engagement zone is permanently plastically deformed at a reduced angle relative to the state prior to installation wherein said second angle of said radially inner circumferentially interrupted engagement zone relative to said plane is less than said first and said second angles of said outer closed edge zone; and,

wherein said second angle of said radially inner circumferentially interrupted engagement zone relative to said plane is less than said first angle of said radially inner circumferentially interrupted engagement zone.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) The closed locking ring as defined in claim 1, wherein said second angle of said outer closed edge zone is about 0°-40° in the installed state of said locking ring with said locking groove.

5. (Previously Presented) The closed locking ring as defined in claim 1, wherein said second angle of said radially inner circumferentially interrupted engagement zone is between and about 0°-20° in the installed state of said locking ring with said locking groove.

6. (Canceled)

7. (Previously Presented) The closed locking ring as defined in claim 1, wherein said radially inner circumferentially interrupted engagement zone is axially and radially permanently plastically deformable and thereby adjusts to said locking groove; and,

    said locking ring having a first inside diameter in the state prior to installation and a second inside diameter in the installed state, said first inside diameter greater than said second inside diameter.

8. (Canceled)

9. (Currently Amended) A closed locking ring for a device having a locking groove, wherein said locking ring includes an outer closed edge zone which slants at a first angle relative to a plane that is normal to the axis of said locking ring in a state prior to installation and slants at a second angle to said plane in an installed state and a radially inner circumferentially interrupted engagement zone which slants at a first angle relative to said plane that is normal to the axis of said locking ring in the state prior to installation and slants at a second angle to said plane in the installed state, said first slanting angle of said radially inner circumferentially interrupted engagement zone being about 15°-45° in the state prior to installation of said locking ring with said locking groove; and,

said locking ring having a first inside diameter in the state prior to installation and a second inside diameter in the installed state, said first inside diameter is different from said second inside diameter wherein in the installed state at least a portion of said radially inner circumferentially interrupted engagement zone is axially and radially permanently plastically deformed and thereby adjusts to said locking groove; and,

wherein in the installed state of the locking ring, at least a portion of said radially inner circumferentially interrupted engagement zone is permanently plastically deformed at a reduced angle relative to the state prior to installation wherein said second slanting angle of said radially inner circumferentially interrupted engagement zone is less than said second slanting angle of said outer closed edge zone.

10. (Canceled)

11. (Previously Presented) The closed locking ring as defined in claim 9, wherein said first slanting angle of said radially inner circumferentially interrupted engagement zone is about the same as said first slanting angle of said outer closed edge zone.

12. (Previously Presented) The closed locking ring as defined in claim 9, wherein said second slanting angle of said radially inner circumferentially interrupted engagement zone is larger than said second slanting angle of said outer closed edge zone.

13. (Canceled)

14. (Canceled)

15. (Canceled)

Cancel claims 13-31.

32. (Currently Amended) A device having a circumferentially closed locking ring fixed axially in a groove of the device, said locking ring including an outer closed circumferentially continuous edge zone which slants at an angle relative to a plane that is normal to an axis of said locking ring and a radially inner circumferentially interrupted engagement zone which slants at an angle relative to said plane, said angle of said outer closed edge zone being substantially the same as said angle of said radially inner circumferentially interrupted engagement zone in a state prior to installation and said angle of said outer closed edge zone being different from said angle of said radially inner circumferentially interrupted engagement zone in an installed state, said device including a shaft, a shaft stub, a bore, or combinations thereof; and,

    said locking ring having a first inside diameter in the state prior to installation and a second inside diameter in the installed state, said first inside diameter is different from said second inside diameter wherein in the installed state, said radially inner circumferentially interrupted engagement zone is axially and radially permanently plastically deformed and thereby adjusts to said locking groove; and,

wherein in the installed state of the locking ring, at least a portion of said radially inner circumferentially interrupted engagement zone is permanently plastically deformed at a reduced angle relative to said state prior to installation, wherein a slanting angle of said radially inner circumferentially interrupted engagement zone in said installed state is less than a slanting angle of said outer closed edge zone in said installed state and is less than a slanting angle of said radially inner circumferentially interrupted engagement zone in said state prior to installation.

33. (Canceled)

34. (Previously Presented)      The device locking ring as defined in claim 32, wherein said slanting angle of said outer closed edge zone is from about 0° to about 40°.

35. (Previously Presented)      The device as defined in claim 32, wherein said slanting angle of said radially inner circumferentially interrupted engagement zone is from about 0° to about 20°.

36. (Canceled)

37. (Canceled)

38. (Original) The device as defined in claim 32, wherein the diameter of the device is larger on one side of the groove than on the other side so that an abutment or shoulder having an engagement zone is created for said radially inner circumferentially interrupted engagement zone of said locking ring.

39. (Original) The device as defined in claim 32, wherein said groove is non-rectangular shaped in cross-section.

40. (Original) The device as defined in claim 32, wherein a cross-section of said groove is tapered at least partly from its opening to its base.

Cancel claims 41-63.

64. (Currently Amended) A closed locking ring for a device having a locking groove, wherein said locking ring including an outer closed edge zone which slants at an angle relative to a plane that is normal to a central axis of said locking ring and a radially inner zone which slants at an angle to said plane, said angle of said outer closed edge zone changing from a first angle to a second angle during installation of said locking ring, said angle of said radially inner zone permanently changing from said first angle to a third angle during installation of said locking ring; and,

    said locking ring having a first diameter before installation and a second diameter after installation, said first diameter is different from said second diameter wherein after installation said radially inner zone is axially and radially permanently plastically deformed and thereby adjusts to said locking groove; and,

wherein said third angle of said radially inner zone is less than said second angle of

said outer closed edge zone, and said third angle of said radially inner zone is less than said first angle of said radially inner zone.

65. (Canceled)

66. (Previously Presented) The closed locking ring as defined in claim 64, wherein said second angle of said outer closed edge zone is from about 0° to about 40° after installation of said locking ring with said locking groove.

67. (Previously Presented) The closed locking ring as defined in claim 64, wherein said third angle of said radially inner zone is from about 0° to about 20° after installation of said locking ring with said locking groove.

68. (Canceled)

69. (Canceled)

70. (Currently Amended) A closed locking ring for a device having a locking groove, wherein said locking ring includes, in a state prior to installation, an outer edge zone which slants from a plane perpendicular to the axis of said locking ring at [[an]] a first angle towards the axis of said locking ring, and a radially inner zone which slants from a plane perpendicular to the axis of said locking ring at [[an]] substantially the same said first angle towards the axis of said locking ring, wherein the said outer edge zone or the said inner zone is an engagement zone for the [[an]] engagement with the locking groove, and wherein said a second angle of said outer edge zone is, in an installed state of the locking ring, different from said a second angle of said radially inner zone in the installed state of the locking ring; and,

wherein, in the installed state of the locking ring, at least a portion of said outer edge zone or said inner zone engagement zone slants at a permanently plastically deformed respective said second reduced-angle towards the axis of said locking ring.